

WHAT IS CLAIMED IS:

1. A failure diagnosis method of a communication network for a vehicle that is constructed by an electronic control device and a plurality of electronic control instruments provided with a failure diagnosis portion being connected to a main line of a multiplex communication line comprising the steps of:

storing different diagnosis trouble codes respectively, at a failure diagnosis portion of the electronic control device, when the electronic control instrument is malfunctioning, or when an abnormality including disconnection or short circuit has occurred in a communication line from the main line of the multiplex communication line to a branch line that is connected to the electronic control instrument;

measuring a resistance value of the main line resistance in the multiplex communication line; and

identifying an abnormality portion in the communication network by a combination of the measured resistance value of the main line and the diagnosis trouble code that is stored in the failure diagnosis portion.

2. The failure diagnosis method of a communication network for a vehicle according to claim 1, further comprising

measuring the diagnosis trouble code that is stored in the failure diagnosis portion, wherein the measuring the diagnosis trouble code is performed after the measuring main line resistance of the multiplex communication line, and the abnormality portion is identified by combining the diagnosis trouble code and the measured resistance value.

3. The failure diagnosis method of a communication network for a vehicle according to claim 1, wherein the measuring the main line resistance of the multiplex communication line is performed after the measuring the diagnosis trouble code that is stored in the failure diagnosis portion is detected, and the abnormality portion is identified by combining the resistance value and the diagnosis trouble code.

4. The failure diagnosis method of a communication network for a vehicle according to claim 1 wherein the measuring the main line resistance includes providing each terminal position of the main line of the multiplex communication line is provided in parallel with terminal resistance, connecting a connector for measurement to the main line of the multiplex communication line via the branch line, measuring the resistance value of the main line resistance via the connector for measurement, and determining, when the

resistance value of the main line resistance is a synthetic resistance value when the terminal resistance is connected in parallel, either one of that no failure has occurred in the main line of the multiplex communication line or the branch line that is connected from the main line to the electronic control instrument are not malfunctioning, and that no failure has occurred in the main line of the communication line, but failure has occurred in the branch line that is connected from the main line of the multiplex communication line to the branch line that is connected to the electronic control instrument.

5. The failure diagnosis method of a communication network for a vehicle according to claim 4 wherein the determining includes determining, when the resistance value of the main line resistance is one of the resistance values of the terminal resistance, failure due to disconnection has occurred in the main line of the multiplex communication line.

6. The failure diagnosis method of a communication network for a vehicle according to claim 4, wherein the determining includes determining, when the resistance value of the main line resistance is 0, at least one of the following cases applies; short circuit of the main line of the multiplex communication line, short

circuit of the branch line that is connected from the main line of the multiplex communication line to the electronic control instrument, and short circuit in the electronic control device.

7. The failure diagnosis method of a communication network for a vehicle according to claim 4 wherein the determining includes determining, when the resistance value of the main line resistance is infinite, failure due to disconnection has occurred in the branch line that connects the connector for measurement and the main line of the multiplex communication line.